

THE BIRDS OF SALAK PHRA WILDLIFE SANCTUARY, SOUTHWESTERN THAILAND

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SUMMARY

One hundred sixty-seven bird species are listed for Salak Phra Wildlife Sanctuary. Abundance, habitat occurrence and seasonality were determined for each. Lowland bamboo forest had the greatest diversity of birds while dry dipterocarp forest had the lowest. Comments on migrational movements of several species are included.

INTRODUCTION

Western Thailand is described by LEKAGUL & CRONIN (1974) as being probably the most poorly known section of the country, ornithologically speaking, and indeed very little information has been published concerning the area. Over the years, only sketchy reports written by various zoological collectors have come from this region. Thus, a study was made at Salak Phra Wildlife Sanctuary to list and estimate the abundance of birds typically found in dry, bamboo-mixed deciduous forest. The results were based on two years of observations, from October 1975 to October 1977, totalling about 900 field-hours.

STUDY AREA

Salak Phra Wildlife Sanctuary is located among the eastern-most foothills of the Tenasserim Mountains in Kanchanaburi Province in southwestern Thailand. The area, which was designated a sanctuary in 1972, is situated on the eastern bank of the Mae Klong or Khwae Yai River (14°08' to 14°42' N and 9°06' to 9°25' E) and has a total area of 936 km². Steep limestone hills alternating with several valleys of 25 to 50 km² dominate the

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landscape. Elevations range from 55 to 1210 m. Some of Thailand's finest bamboo forest is present. On the northwest side, the sanctuary borders a reservoir behind the newly completed Chao Nen Dam and its associated village resettlement areas. To the southwest, south and east, scrub bamboo forest and cultivated land of principally sugar cane border the reserve. Only in the north does relatively undisturbed forest continue outside the sanctuary boundaries.

MOORMAN & RAJANASOONTHAON (1972) distinguish two soil types for this part of Kanchanaburi. Red-brown earths exist in the lowlands, where they have originated from limestone residuum or from alluvial and colluvial deposits derived from limestone. The soil is generally clayey in texture but clay is especially evident in the B horizon where base saturation is medium to high. The second soil type, found on hills and steep terrain, is variable in character but is always very shallow and frequently similar to the lowland red-brown earths.

The climate at Salak Phra is characterized by three basic monsoonal seasons typical of Thailand. A rainy season occurs from May to October when approximately 75% of the annual rainfall occurs, a cool, dry season from November to February, and a hot, dry season from February to May. As is typical for western Thailand, lying in the rainshadow of the Tenasserim Mountains, average annual rainfall is low at 1130 mm. Average maximum air temperature is 32.5°C with an average minimum of 20.1°C. Weather data were collected at Amphoe Si Sawat, a town 45 km northwest of the study area.

Most bird observations were made in the southern half of the sanctuary, below a line connecting the Chao Nen Dam and Ban Mongata on the western side to the northern end of the Huai Salak Phra valley and Khao Khanung Mountain on the eastern side. Of the four main types of forest existing in this area, lowland bamboo forest has the highest numbers and greatest diversity of birds. This is found only in valleys where soil depth is greatest. Large clumps of thorny bamboo (*Bambusa arundinacea*) dominate this forest type and typically cover 2 to 10% of the ground space. They reach heights of 15 to 25 m and together with deciduous trees such as *Lagerstroemia calyculata*, *Gmelina arborea*, *Diospyros mollis*, *D. rhodocalyx*, *Sisyrolepis*

muricata, *Homalium tomentosum*, *Millettia leucantha* and *Crataeva adansonii* make up a forest with a fairly open overstorey. Smaller understorey trees such as *Combretum quadrangulare* and *Cleistanthus papyraceus* interspersed with woody climbers like *Bauhinia bracteata* and *Caesalpinia hymenocarpa* reach heights of 4 to 8 m and vary greatly in density. Herbs and shrubs such as *Aglaonema* sp., *Boesenbergia pandurata*, *Bauhinia scandens*, *Grewia tomentosa*, *Harrisonia perforata*, *Streblus asper* and *Glyphostylus laoticus* make up a low density, typically thorny ground cover.

Upland bamboo forest, which covers the largest area in the sanctuary, is found on hillsides and level upland areas. Rock outcrops are frequent and the soil layer is thin. *Thyrsostachys siamensis* replaces *Bambusa arundinacea* as the dominant plant species while many of the tree, shrub and herb species found in the lowland bamboo forest remain at a lower density. The deciduous tree canopy reaches 12 to 20 m but is very open while *T. siamensis* forms a solid layer in the 7 to 15 m strata throughout and at times almost forms a pure stand. No ecotone exists between the upland and lowland bamboo forests, and the line separating them is easily visible.

The third forest type is derived from lowland and upland bamboo forest. Due to excessive cattle grazing and bamboo harvesting, the original forest has degraded into scrub bamboo forest characterized by smaller and well trimmed clumps of either *Thyrsostachys siamensis* or *Bambusa arundinacea* 5 to 15 m high. Larger deciduous trees are fewer and smaller than in lowland bamboo forest due to selective cutting by villagers, and grazing has reduced or eliminated many of the shrubs and much of the ground cover. *Eupatorium odoratum*, an invading herb that is useless for most wildlife, has become very dense. Scrub bamboo forest is found in the lowlands and on hillsides in the most accessible areas of the sanctuary, particularly in the southern end, where it forms a 1 to 2-km wide ring around the entire border.

Dry dipterocarp forest, sometimes called dry deciduous forest, indaing (RICHARDS 1952) or savanna forest, is the fourth habitat found within Salak Phra. It consists of widely spaced dipterocarp trees such as *Dipterocarpus obtusifolius*, *D. tuberculatus*, *Shorea obtusa* and *S. siamensis* interspersed with *Pterocarpus macrocarpus*, *Xylia kerrii* and *Terminalia chebula* that are 8 to 16 m high and form a sparse overstorey. The ground cover

layer consists either of pure grass or grass with young seedlings intermixed. Cycads (*Cycas siamensis*) are often present. This type of forest is found on hillsides and in lowlands where soil is shallow and rock outcrops are present.

Two additional minor habitat types include small (.002 to 1.00 km²) grassy fields, which may be found in any of the four forest types already described, and cultivated lands. The latter border the sanctuary in many locations, particularly at the southern end. Sugar cane is the primary crop, although some corn and cotton is also grown. These cultivated fields influence the bird variety at the boundaries of the sanctuary.

Ground fires annually burn through much of the sanctuary. Their effects are little understood, but they certainly play an important role in the ecology of all habitat types, particularly the dry dipterocarp forest.

DISCUSSION

One hundred sixty-seven species have been recorded for Salak Phra Wildlife Sanctuary (Table 1). Of the four forest types, lowland bamboo forest easily contains the largest number and greatest variety of birds. Of the 152 species seen by the author, 78.3% can be found regularly in this type compared with 55.9% in scrub bamboo forest, 36.2% in upland bamboo forest and 23.0% in dry dipterocarp forest. The clear preference displayed for this kind of forest may be due to its greater complexity. It contains a greater variety and larger numbers of deciduous and fruiting trees that form a higher, more diverse overstorey. There is also a more dense ground cover, more numerous water sources and less disturbance by man. In contrast, the poor variety in dry dipterocarp forest may be due to a combination of factors decreasing habitat complexity. It has a single, open, low overstorey, a scarcity of fruiting trees, little shading, a thin ground cover, and is quite dry throughout most of the year. These variable conditions also have caused small mammal abundance and variety to be the highest in lowland bamboo forest and lowest in dry dipterocarp forest (WILES, *in press*).

McCLURE(1974) describes several types of migrants whose movements appear to fit some of those observed at Salak Phra for species resident to Thailand. Some may be limited migrants which periodically move over large areas but remain inside their geographical breeding range. This would

include the White-throated Kingfisher and Chinese Pond-Heron whose movements are probably related to the dry season and the availability of food, and might include others such as the Grey-headed Parakeet, Scarlet Minivet, Grey-headed Flycatcher and White-rumped Munia which are mainly present from September and October to March and April. Other species may be wanderers whose dispersal over their breeding range may be non-seasonal or non-directional. The Chestnut-winged Cuckoo and Blue-winged Pitta may be circulating migrants, migrating south along one route and returning north along a different route through Salak Phra. A large aggregation of Chestnut-winged Cuckoos moved into the Huai Salak Phra valley from late March to late April 1977 and were commonly seen every day as individuals or pairs. Blue-winged Pittas appeared in May and June of both years. Some residents of the sanctuary, such as the Shikra, have low rainy season population numbers augmented by wintering birds.

This list (Table 1) is by no means complete. New species were found to the end of the study period and the 167 species given here probably represent only 65 to 75% of an estimated total of 225 to 250 birds. Large areas of dry dipterocarp and hill evergreen forest in the northern half of the sanctuary were unsampled and certainly contain new species, as do scrub bamboo forest, hilltops and streamsides, which were often neglected. The diurnal birds of prey are poorly represented due to identification problems and need to be expanded. The habitat preference and monthly presence data (Table 1) are also minimums. Many species recorded for only several months are probably year round residents, and many probably have a wider habitat usage than listed. Continued study is needed to fill the remaining gaps.

Common and scientific names in Table 1 follow those used by KING & DICKINSON (1975). Each species has been given an abundance rating that is a simple attempt to classify population size while taking its habits and ease of sighting into consideration. A rating of rare means a species was seen four times or less during the two years. Habitat preference listings indicate where a species is most likely to be seen. Fourteen species seen by the Bangkok Bird Club in November 1977 (D. DAMMAN pers. comm.) have been included, and it can probably be assumed that none of these birds have an abundance rating greater than rare or occasional.

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Table 1. Birds seen in Salak Phra Wildlife Sanctuary during 1975-1977. Key to abundance: R = rare; Oc = occasional; C = common; VC = very common. Key to habitat: LB = lowland bamboo forest; UB = upland bamboo forest; SB = scrub bamboo forest; DD = dry dipterocarp forest; A = agricultural land. + = sighted; h = heard; BBC = Bangkok Bird Club.

Species	J	F	M	A	M	J	J	A	S	O	N	D	Notes
1. Little Heron (<i>Butorides striatus</i>)					+								R in LB near streams
2. Chinese Pond-Heron (<i>Ardeola bacchus</i>)	+	+	+	+					+	+	+		Oc in LB, SB near streams and water holes
3. Cinnamon Bittern (<i>Ixobrychus cinnamomeus</i>)			+		+								R in LB near streams and water holes
4. Asian Openbill (<i>Anastomus oscitans</i>)					+								R in LB ¹
5. Black Baza (<i>Aviceda leuphotes</i>)				+			+	+	+	+			Oc in LB
6. Black-shouldered Kite (<i>Elanus caeruleus</i>)											+		R in SB, A
7. Red-headed Vulture (<i>Sarcogyps calvus</i>)									+	+			R in SB
8. Crested Serpent-Eagle (<i>Spilornis cheela</i>)			+		+							+	Oc in LB, UB, SB, DD
9. Crested Goshawk (<i>Accipiter soloensis</i>)												+	Reported by the BBC
10. Shikra (<i>Accipiter badius</i>)			+	+	+							+	Oc in LB, UB
11. Collared Falconet (<i>Microhierax caerulescens</i>)									+			+	R in LB, UB
12. Chinese Francolin (<i>Francolinus pintadeanus</i>)	+				h	h	h	h					Oc in DD, grass fields. Males call from April through July

Table 1. (continued).

Species	J	F	M	A	M	J	J	A	S	O	N	D	Notes
13. Sca y-breasted Partridge (<i>Arborophila charltonii</i>)												+	Reported by the BBC
14. Kalij Pheasant (<i>Lophura leucomelana</i>)		+	+				+	+	+				Oc in LB, UB
15. Red Junglefowl (<i>Gallus gallus</i>)	+	+	+	+	+	+	+	+	+	+	+	+	VD in LB, SB, UB ²
16. Green Peafowl (<i>Pavo muticus</i>)							+						Reported by sanctuary rangers ³
17. White-breasted Waterhen (<i>Amaurornis phoenicurus</i>)												+	R in LB near streams
18. Red-wattled Ladwing (<i>Vanellus indicus</i>)				+					+				Oc in SB near water holes
19. Green Sandpiper (<i>Tringa ochropus</i>)								+					R in SB near water holes
20. Thick-billed Pigeon (<i>Treron curvirostra</i>)	+			+	+	+	+	+		+	+	+	Oc in LB,
21. Spotted Dove (<i>Streptopelia chinensis</i>)										+	+	+	C in SB particularly at the southern end of the sanc- tuary; Oc in LB
22. Green-winged Pigeon (<i>Chalcophaps indica</i>)		+	+	+			+	+	+	+			Oc in LB
23. Grey-headed Parakeet (<i>Psittacula finschii</i>)	+	+	+	+						+	+		C in DD, LB. Nests in DD.
24. Vernal Hanging Parrot (<i>Loriculus vernalis</i>)								+	+	+	+		R in LB

Table 1. (Continued).

Species	J	F	M	A	M	J	J	A	S	O	N	D	Notes
25. Ches'nut-winged Cuckoo (<i>Clamator coromandus</i>)			+	+									C in LB
26. Indian Cuckoo (<i>Cuculus micropterus</i>)			+										R in LB, UB
27. Banded Bay Cuckoo (<i>Cacomantis sonneratii</i>)	+									+			R in SB
28. Green-billed Malkoha (<i>Phaenicophaeus tristis</i>)	+	+	+	+	+	+	+	+	+	+	+	+	VC in LB, UB, SB, DD
29. Lesser Coucal (<i>Centropus bengalensis</i>)			+			+	+	+					C in SB, LB
30. Greater Coucal (<i>Centropus sinensis</i>)	+		+	+							+		Oc in SB
31. Mountain Scops-Owl (<i>Otus spilocephalus</i>)						h							R in UB
32. Collared Scops-Owl (<i>Otus bakkamoena</i>)						h	h						C in LB, UB
33. Collared Owlet (<i>Glaucidium brodiei</i>)								h	h				C in LB, UB
34. Asian Barred Owlet (<i>Glaucidium cuculoides</i>)	+	+	+	+	+	+	+	+	+	+	+	+	VC in LB, UB, SB, DD
35. Brown Hawk-Owl (<i>Ninox scutulata</i>)				h									R in SB
36. Brown Wood-Owl (<i>Strix leptogrammica</i>)						h	h				h		Oc in LB, UB
37. Javan Frogmouth (<i>Batrachostomus javensis</i>)		h											R in LB
38. Great Eared Nightjar (<i>Eurostopodus macrotis</i>)										+			Reported by the BBC
39. Large-tailed Nightjar (<i>Caprimulgus macrurus</i>)	+						h	h					C in LB, SB

Table 1. (Continued).

Species	J	F	M	A	M	J	J	A	S	O	N	D	Notes
40. Indian Nightjar (<i>Caprimulgus asiaticus</i>)								h	h				R in SB, UB
41. Himalayan Swiftlet (<i>Collocalia brevirostris</i>)	+			+				+	+		+		Oc in LB, UB, SB, DD
42. Brown Needletail (<i>Hirundapus giganteus</i>)							+						R in LB, UB
43. Crested Treeswift (<i>Hemiprocne coronata</i>)						+	+	+					Oc in DD and open sections of LB, UB, SB
44. Orange-breasted Trogon (<i>Harpactes oreskios</i>)	+	+	+			+	+	+	+	+			Oc in LB
45. Common Kingfisher (<i>Alcedo atthis</i>)								+		+			R in LB near streams
46. Stork-billed Kingfisher (<i>Pelargopsis capensis</i>)				+						+			R in LB near streams
47. Banded Kingfisher (<i>Lacedo pulchella</i>)								+					R in LB near streams
48. White-throated Kingfisher (<i>Halcyon smyrnensis</i>)	+	+	+	+		+			+	+	+	+	Oc in SB, LB, A near Streams and water holes
49. Black-capped Kingfisher (<i>Halcyon pileata</i>)				+	+				+	+	+		Oc in LB near streams
50. Chestnut-headed Bee-eater (<i>Merops leschenaulti</i>)								+	+		+		Oc in SB, DD
51. Blue-tailed Bee-eater (<i>Merops philippinus</i>)				+									R in SB, A

Table 1. (Continued),

Species	J	F	M	A	M	J	J	A	S	O	N	D	Notes
52. Green Bee-eater (<i>Merops orientalis</i>)												+	Reported by the BBC
53. Blue-bearded Bee-eater (<i>Nyctyornis athertoni</i>)						+		+	+				Oc in LB
54. Indian Roller (<i>Coracias benghalensis</i>)	+	+					+			+	+	+	C in open SB, A
55. Dollarbird (<i>Eurystomus orientalis</i>)			+								+		R in LB
56. Hoopoe (<i>Upupa epops</i>)	+	+		+					+		+		C in SB and grass fields; Oc in DD, open LB
57. Indian Pied Hornbill (<i>Anthracoceros albirostris</i>)	+	+	+	+	+	+	+	+	+	+	+	+	C in LB, LB
58. Great Hornbill (<i>Buceros bicornis</i>)						+		+	+	+	+		Oc in LB, UB
59. Green-eared Barbet (<i>Megalaima faiostricta</i>)											+		Reported by the BBC
60. Lineated Barbet (<i>Megalaima lineata</i>)	+	+	+	+	+	+	+	+	+	+	+	+	VC in LB, UB, SB
61. Coppersmith Barbet (<i>Megalaima haemacephala</i>)	+	+	+	+	+	+	+	+	+	+	+	+	C in LB, UB, SB
62. Eurasian Wryneck (<i>Jynx torquilla</i>)				+									R in DD
63. White-browed Piculet (<i>Sasia ochracea</i>)	+												R in LB
64. Rufous Woodpecker (<i>Micropternus brachyurus</i>)				+			+				+		R in LB
65. Laced Woodpeck (<i>Picus vittatus</i>)	+					+				+	+		R in LB
66. Grey-headed Woodpecker (<i>Picus canus</i>)						+		+			+		Oc in LB, UB
67. Black-headed Woodpecker (<i>Picus erythropygius</i>)	+	+	+			+	+	+	+				C in LB, UB, SB

Table 1. (Continued).

Species	J	F	M	A	M	J	J	A	S	O	N	D	Notes
68. Greater Yellownappe (<i>Picus flavinucha</i>)	+			+		+		+	+	+	+		C in LB, UB, SB, DD
69. Lesser Yellownappe (<i>Picus chlorolophus</i>)	+							+	+		+	+	Oc in SB, LB
70. Common Goldenback (<i>Dinopium javanense</i>)	+	+							+		+	+	Oc in LB, UB, SB, DD
71. Bamboo Woodpecker (<i>Gecinulus viridis</i>)	+		+					+	+		+		Oc in LB
72. White-bellied Woodpecker (<i>Dryocopus javensis</i>)	+	+	+	+	+	+	+	+	+				Oc in LB, DD
73. Grey-capped Woodpecker (<i>Picoides canicapillus</i>)	+	+	+					+	+		+		Oc in LB, UB, SB, DD
74. Greater Goldenback (<i>Chrysocolaptes lucidus</i>)	+	+	+	+	+	+	+	+	+	+	+	+	VC in LB, UB, SB; Oc in DD
75. Silver-breasted Broadbill (<i>Serilophus lunatus</i>)											+		Reported by the BBC
76. Blue-winged Pitta (<i>Pitta moluccensis</i>)						+	+						Oc in LB near streams
77. Hooded Pitta (<i>Pitta sordida</i>)										+			R in LB
78. Blue Pitta (<i>Pitta cyanea</i>)						+							R in LB
79. Barn Swallow (<i>Hirundo rustica</i>)			+							+	+		Oc in SB
80. Red-rumped Swallow (<i>Hirundo daurica</i>)		+	+	+			+			+	+		Oc in LB, UB, SB, DD
81. Bar-winged Flycatcher-shrike (<i>Hemipus picatus</i>)		+	+	+	+		+			+	+		C in LB, UB, SB
82. Large Wood-shrike (<i>Tephrodornis virgatus</i>)		+	+					+					R in LB

Table 1. (continued).

Species	J	F	M	A	M	J	J	A	S	O	N	D	Notes
83. Large Cuckoo-Shrike (<i>Coracina novaehollandiae</i>)	+		+					+	+	+			C in DD; Oc in UB
84. Indochinese Cuckoo-Shrike (<i>Coracina polioptera</i>)											+		R in LB
85. Black-winged Cuckoo-Shrike (<i>Coracina melaschista</i>)	+										+	+	R in LB, UB
86. Scarlet Minivet (<i>Pericrocotus flammeus</i>)	+		+	+							+	+	Oc in LB, UB, SB
87. Common Iora (<i>Aegithina tiphia</i>)	+	+	+					+	+	+	+	+	VC in LB, UB, SB
88. Great Iora (<i>Aegithina lafresnayei</i>)	+		+			+		+	+	+	+		Oc in LB, SB
89. Golden-fronted Leafbird (<i>Chloropsis aurifrons</i>)	+	+	+	+	+	+	+	+	+	+	+	+	VC in LB, UB, SB, DD
90. Blue-winged Leafbird (<i>Chloropsis cochinchinensis</i>)	+	+						+	+	+	+	+	Oc in LB, SB
91. Black-headed Bulbul (<i>Pycnonotus atriceps</i>)									+		+		R in LB, SB
92. Black-crested Bulbul (<i>Pycnonotus melanicterus</i>)	+	+	+	+	+	+	+	+	+	+	+	+	VC in LB, UB, SB, DD
93. Red-whiskered Bulbul (<i>Pycnonotus jocosus</i>)											+		Reported by the BBC
94. Sooty-headed Bulbul (<i>Pycnonotus aurigaster</i>)	+	+	+	+				+	+	+	+	+	VC in SB; C in DD

Table 1. (continued).

Species	J	F	M	A	M	J	J	A	S	O	N	D	Notes
95. Stripe-throated Bulbul (<i>Pycnonotus finlaysoni</i>)		+	+			+	+	+	+	+	+	+	C in LB, SB
96. Steak-eared Bulbul (<i>Pycnonotus blanfordi</i>)	+	+	+	+	+	+	+	+	+	+	+	+	VC in SB, LB
97. Ashy Bulbul (<i>Hypsipetes flavala</i>)											+		Reported by the BBC
98. Black Drongo (<i>Dicrurus macrocercus</i>)											+	+	C in SB, A at the southern end of the sanctuary
99. Ashy Drongo (<i>Dicrurus leucophaeus</i>)	+	+					+	+	+	+	+	+	C in SB; Oc in LB, DD
100. Bronzed Drongo (<i>Dicrurus aeneus</i>)	+	+	+	+	+	+	+	+	+	+	+	+	VC in LB, UB; Oc in SB
101. Spangled Drongo (<i>Dicrurus hottentottus</i>)	+	+	+	+	+	+	+	+	+	+	+	+	VC in LB, UB, SB, DD
102. Lesser Racket-tailed Drongo (<i>Dicrurus remifer</i>)	+										+		R in UB
103. Greater Racket-tailed Drongo (<i>Dicrurus paradiseus</i>)	+	+	+	+	+	+	+	+	+	+	+	+	VC in LB, UB, SB, DD
104. Black-naped Oriole (<i>Oriolus chinensis</i>)	+	+	+	+					+	+	+	+	C in LB, UB, SB, DD
105. Black-hooded Oriole (<i>Oriolus xanthornus</i>)	+	+	+	+	+	+	+	+	+	+	+	+	VC in LB, UB, SB, DD
106. Asian Fairy-Bluebird (<i>Irena puella</i>)								+	+	+	+		Oc in LB, UB
107. Eurasian Jay (<i>Garrulus glandarius</i>)	+						+			+			R in or near DD
108. Green Magpie (<i>Cissa chinensis</i>)		+	+				+				+		Oc in LB; R in SB
109. Blue Magpie (<i>Urocissa erythrorhyncha</i>)						+	+	+			+	+	Oc in SB, LB

Table 1. (continued)

Species	J	F	M	A	M	J	J	A	S	O	N	D	Notes
110. Rufous Treepie (<i>Dendrocitta vagabunda</i>)							+	+	+	+	+		Oc in DD, SB, LB
111. Racket-tailed Treepie (<i>Crypsirina temia</i>)	+	+	+	+	+	+	+	+	+	+	+	+	VC in SB, LC
112. Large-billed Crow (<i>Corvus macrorhynchos</i>)	+	+								+	+	+	C in SB, A
113. Sultan Tit (<i>Melanochlora sultanea</i>)								+			+	+	R in LB
114. Chestnut-bellied Nuthatch (<i>Sitta castanea</i>)								+			+		Oc in DD
115. Velvet-fronted Nuthatch (<i>Sitta frontalis</i>)			+	+	+	+	+	+	+	+	+	+	C in LB, UB
116. Puff-throated Babbler (<i>Pellorneum ruficeps</i>)	+	+	+	+	+	+	+	+		+			C in LB
117. White-browed Scimitar-Babbler (<i>Pomatorhinus schisticeps</i>)	+		+			+		+	+	+			Oc in LB
118. Striped Tit-Babbler (<i>Macronous gularis</i>)	+	+	+	+	+	+	+	+	+	+	+	+	VC in LB, UB SB
119. White-crested Laughing Thrush (<i>Garrulax leucolophus</i>)	+	+	+	+	+	+	+	+	+	+	+	+	VC in LB, UB, SB
120. Lesser Necklaced Laughing Thrush (<i>Garrulax monileger</i>)		+	+	+				+	+		+		C in LB, UB, SB
121. Greater Necklaced Laughing Thrush (<i>Garrulax pectoralis</i>)			+	+		+		+		+	+		C in LB, UB, SB

Table 1. (continued).

Species	J	F	M	A	M	J	J	A	S	O	N	D	Notes
122. Brown-cheeked Fulvetta (<i>Alcippe poioicephala</i>)												+	Reported by the BBC
123. White-bellied Yuhina (<i>Yuhina zantholeuca</i>)						+						+	R in LB
124. Siberian Blue Robin (<i>Erithacus cyane</i>)	+												R in LB
125. Magpie Robin (<i>Copsychus saularis</i>)	+	+	+	+	+	+	+	+	+	+	+	+	C in SB; Oc in LB
126. White-rumped Shama (<i>Copsychus malabaricus</i>)	+	+	+	+	+	+	+	+	+	+	+	+	VC in LB; Oc in UB, SB
127. Blue Rock-Thrush (<i>Monticola solitarius</i>)										+	+		Oc in SB
128. Blue Whistling Thrush (<i>Myophonus caeruleus</i>)				+		+						+	Oc in LB near streams
129. Yellow-bellied Warbler (<i>Abroscopus superciliaris</i>)	+	+	+	+	+	+	+	+	+	+	+	+	Oc in LB
130. Dusky Warbler (<i>Phylloscopus fuscatus</i>)	+								+		+		LB ⁴
131. Inornate Warbler (<i>Phylloscopus inornatus</i>)											+		Reported by the BBC ⁴
132. Greenish Warbler (<i>Phylloscopus trochiloides</i>)										+	+		LB ⁴
133. Eastern Crowned Warbler (<i>Phylloscopus coronatus</i>)									+	+			LB ⁴
134. Common Tailorbird (<i>Orthotomus sutorius</i>)	+			+		+	+	+	+	+	+	+	C in LB, UB, SB, DD

Table 1. (continued).

Species	J	F	M	A	M	J	J	A	S	O	N	D	Notes
135. Dark-necked Tailorbird (<i>Orthotomus atrogularis</i>)			+	+		+		+	+		+	+	C in LB, UB, SB, DD
136. Rufescent Prinia (<i>Prinia rufescens</i>)			+	+			+	+		+	+		C in SB, DD
137. Tawny-flanked Prinia (<i>Prinia subflava</i>)									+				R in SB, DD
138. Asian Brown Flycatcher (<i>Muscicapa latirostris</i>)				+							+		R in UB
139. Verditer Flycatcher (<i>Muscicapa thalassina</i>)	+												R in SB
140. Red-throated Flycatcher (<i>Ficedula parva</i>)	+	+								+	+	+	VC in SB, LB, DD
141. Hainan Blue Flycatcher (<i>Cyornis hainana</i>)										+			R in LB
142. Blue-throated Flycatcher (<i>Cyornis rubeculoides</i>)	+												R in LB, UB
143. Tickell's Blue Flycatcher (<i>Cyornis tickelliae</i>)	+	+	+	+	+	+	+	+	+	+	+	+	C in LB, UB, SB
144. Grey-headed Flycatcher (<i>Culicicapa ceylonensis</i>)	+	+	+							+	+	+	VC in LB, SB
145. Pied Fantail (<i>Rhipidura javanica</i>)			+						+	+	+		C in SB at the southern end of the sanctuary
146. Black-naped Monarch (<i>Hypothymis azurea</i>)	+	+	+	+	+	+	+	+	+	+	+	+	VC in LB, UB; Oc in SB

Table 1. (continued)

Species	J	F	M	A	M	J	J	A	S	O	N	D	Notes
147. Asian Paradise-Flycatcher (<i>Terpsiphone paradisi</i>)		+				+		+	+		+		Oc in LB ⁵
148. Grey Wagtail (<i>Motacilla cinerea</i>)	+	+	+					+	+	+	+	+	C in SB, LB near streams, water holes and trails
149. Forest Wagtail (<i>Dendronanthus indicus</i>)			+	+				+	+	+	+	+	C in LB, SB near streams and trails
150. Olive Tree-Pipit (<i>Anthus hodgsoni</i>)							+			+	+		R in DD, LB
151. Richard's Pipit (<i>Anthus novaeseelandiae</i>)										+	+		R in SB, A
152. Ashy Wood-Swallow (<i>Artamus fuscus</i>)									+				Reported by the BBC
153. Burmese Shrike (<i>Lanius collurio</i>)									+	+	+		C in SB
154. Brown Shrike (<i>Lanius cristatus</i>)								+	+	+	+		C in SB; R in LB
155. Vinous-breasted Starling (<i>Sturnus burmannicus</i>)											+		Reported by the BBC
156. Black-collared Starling (<i>Sturnus nigricollis</i>)						+	+		+	+	+		VC in SB, A
157. Common Myna (<i>Acridotheres tristis</i>)	+	+	+	+	+	+	+	+	+	+	+	+	VC in SB, A
158. White-vented Myna (<i>Acridotheres javanicus</i>)											+		C in A; R in SB at the south end of the sanctuary
159. Hill Myna (<i>Gracula religiosa</i>)	+									+	+		R in LB, UB
160. Ruby-cheeked Sunbird (<i>Anthreptes singalensis</i>)	+	+	+			+	+		+	+	+		C in LB; Oc in SB

Table 1. (continued)

Species	J	F	M	A	M	J	J	A	S	O	N	D	Notes
161. Olive-backed Sunbird (<i>Nectarina jugularis</i>)	+								+	+	+	+	Oc in LB, SB
162. Purple Sunbird (<i>Nectarinia asiatica</i>)	+	+							+				Oc in SB
163. Crimson Sunbird (<i>Aethopyga siparaja</i>)						+		+	+				R in LB
164. Yellow-vented Flowerpecker (<i>Dicaeum chrysorrheum</i>)											+		Reported by the BBC
165. Scarlet-backed Flowerpecker (<i>Dicaeum cruentatum</i>)			+	+				+	+	+	+		C in DD, SB, UB; R in LB
166. White-rumped Munia (<i>Lonchura striata</i>)	+	+	+				+		+	+	+	+	C in SB, grassy sections of LB
167. Scaly-breasted Munia (<i>Lonchura punctulata</i>)											+		Reported by the BBC

1 – A flock of 13 of these birds was seen flying through the Huai Salak Phra valley in August 1977. Although McCURE (1974) shows this part of Kanchanaburi to be along a straight-line route for migrations to Bangladesh from Wat Phai Lom in Pathumthani province, neither LEKAGUL & CRONIN (1974) nor KING & DICKINSON (1975) list the Asian openbill as being found in southwestern Thailand. However, these storks do not begin arriving at the temple, which lies 140 km southeast of Salak Phra, until October and most have left by June and July (McCURE & KWANYUEN 1973). Thus, this flock may not have been involved in the Bangladesh migrations but rather in one of the flights into central and western Thailand or eastern Burma.

Table 1. (continued)

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2 - Calling by males reaches a peak in January and February. Although they can be heard throughout the day and night, early evening is the main activity period when as many as 6 or 7 males call back and forth. Flocks with chicks can be found from March to May.

3 - The single sighting by sanctuary personnel was made between the northern tip of the Huai Salak Phra valley and Thung Na Mon near the center of the sanctuary. Unfortunately, this could never be confirmed with a second sighting. Habitat type was not given.

4 - Warblers of the genus *Phylloscopus* are difficult to identify in the field. As a group, these birds were seen often from September through March in all forest types. However, it is not possible to give accurate abundance ratings and complete habitat listings due to the lack of enough positive identifications. The species listed are given with the habitat type in which they were seen,

5 - Of the 20 sightings made, only birds fitting the description of the female were observed. No males with elongated tail feathers or the white color phase were seen.

WILES